# Course progression map for 2021 commencing students

This progression map provides advice on the suitable sequencing of units and guidance on how to plan unit enrolment for each semester of study. It does not substitute for the list of required units as described in the course 'Requirements' section of the Handbook. Please note that the map and unit listings are subject to updates.

Update version: 30 July 2021

## E6014 Master of Engineering

**Specialisation - Biological engineering**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>CHE5886 Advanced biopolymers</th>
<th>CHE5321 Advanced bioprocess technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR 1 Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>CHE5882 Biomass and biorefineries</td>
<td>CHE5322 Advanced biochemical engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part A. Common core units</th>
<th>Part B. Specialist core units</th>
<th>Part C. Enhancement units</th>
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</thead>
</table>

### Biological engineering enhancement units

- CHE5883 Nanostructured membranes for separation and energy production
- CHE5889 Food engineering and processing
- ENG5008 Work integrated learning *

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E6014 Master of Engineering
Specialisation - Civil engineering

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<thead>
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<th>Part B. Specialist core units</th>
<th>Part C. Enhancement units</th>
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<tbody>
<tr>
<td></td>
<td>ENG5100 Professional engineering in organisation and society</td>
<td>ENG5001 Advanced engineering data analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specialist core unit</td>
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<td>ENG5410 Research practice in engineering</td>
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Civil engineering enhancement units

- CIV5135 Advanced structural design
- CIV5177 Road engineering
- CIV5301 Advanced traffic engineering
- CIV5314 Planning urban mobility futures
- CIV5882 Flood hydraulics and hydrology
- CIV5883 Surface water hydrology
- CIV5887 Infrastructure rehabilitation and monitoring
- CIV5888 Advanced computational methods
- ECE5146 Multimedia technologies
- ECE5179 Neural networks and deep learning
- ENG5008 Work integrated learning *
- ENG5002 Engineering entrepreneurship
- MEC5882 Instrumentation, sensing and monitoring
- MEC5888 Renewable energy systems
- MTE5197 Engineering with nanomaterials
- MTE5883 Environmental durability and protection of metals and engineering materials

Civil engineering specialist core units

Below are suggested units to guide you in focusing in a field of civil engineering suited to your previous study. You may also choose freely from the civil units listed below.

Structural engineering
- CIV5885 Infrastructure dynamics
- CIV5887 Infrastructure rehabilitation and monitoring
- CIV5888 Advanced computational methods
- CIV5899 Infrastructure information management

Geotechnical engineering
- CIV5886 Infrastructure geomechanics
- CIV5888 Advanced computational methods
- CIV5899 Infrastructure information management
- CIV5887 Infrastructure rehabilitation and monitoring or CIV5148 Ground hazards engineering

Transport engineering
- CIV5301 Advanced traffic engineering
- CIV5302 Traffic engineering and management
- CIV5304 Intelligent transport systems
- CIV5314 Planning urban mobility futures

Water engineering
- CIV5881 Ground water hydraulics
- CIV5882 Flood hydraulics and hydrology
- CIV5883 Surface water hydrology
- CIV5884 Water sensitive stormwater design

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**E6014 Master of Engineering**

Specialisation - Electrical engineering

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<thead>
<tr>
<th>YEAR 1</th>
<th>Semester 1</th>
<th>ENG5100 Professional engineering in organisation and society</th>
<th>ENG5001 Advanced engineering data analysis</th>
<th>ECE5881 Real-time system design</th>
<th>ECE5883 Advanced signal processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR 1</td>
<td>Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
<td>Enhancement unit</td>
<td>ECE5882 Advanced electronics design</td>
<td>ECE5884 Wireless communications</td>
</tr>
</tbody>
</table>

- Part A. Common core units
- Part B. Specialist core units
- Part C. Enhancement units

### Electrical engineering enhancement units

- CHE5882 Biomass and biorefineries
- CHE5883 Nanostructured membranes for separation and energy production
- ECE5122 Advanced electromagnetics
- ECE5143 Optical communications
- ECE5146 Multimedia technologies
- ECE5153 Power system analysis
- ECE5156 Advanced power electronics
- ECE5178 Intelligent robotics
- ECE5179 Neural networks and deep learning
- ECE5886 Smart grids
- ENG5007 Translation and commercialisation of medical technologies
- ENG5008 Work integrated learning *
- MEC5881 Engineering systems performance analysis
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

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**E6014 Master of Engineering**

**Specialisation - Materials engineering**

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<td>YEAR 1 Semester 2</td>
<td>ENG5410 Research practice in engineering</td>
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Part A. Common core units  
Part B. Specialist core units  
Part C. Enhancement units

### Materials engineering enhancement units

- CHE5883 Nanostructured membranes for separation and energy production
- ENG5008 Work integrated learning *
- MTE5194 Engineering alloy design, processing and selection
- MTE5197 Engineering with nanomaterials
- MTE5881 Applied crystallography in advanced materials characterisation
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

### Materials engineering specialist core units

- MTE5190 Advanced materials modelling
- MTE5193 Materials and sustainability
- MTE5194 Engineering alloy design, processing and selection
- MTE5197 Engineering with nanomaterials
- MTE5881 Applied crystallography in advanced materials characterisation
- MTE5882 Advanced polymeric materials
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5894 Advanced photovoltaics and energy storage
- MTE5895 Biomaterials and biomechanics
- MTE5896 Additive manufacturing of metallic materials
- MTE5887 Additive manufacturing of polymeric and functional materials

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# E6014 Master of Engineering

**Specialisation - Mechanical engineering**

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<td>Advanced engineering data analysis</td>
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<tr>
<td>MEC5883</td>
<td>Mechanical systems design</td>
<td>MEC5881 Engineering systems performance and analysis</td>
</tr>
<tr>
<td>MEC5885</td>
<td>Energy efficiency and sustainability engineering</td>
<td>MEC5884 Sustainable engineering systems</td>
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### Mechanical engineering enhancement units

- ENG5002 Engineering entrepreneurship
- ENG5008 Work integrated learning *
- MEC5156 Advanced robotics in manufacturing
- MEC5882 Instrumentation, sensing and monitoring
- MEC5888 Renewable energy systems
- MEC5897 Lean manufacturing
- MTE5883 Environmental durability and protection of metals and engineering materials
- MTE5886 Additive manufacturing of metallic materials

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